WHAT IS CLAIMED IS:

1. A solid oxide fuel cell having a supported electrolyte film comprising:

an electrolyte film comprised of a first solid electrolyte exhibiting oxide ion conductivity;

a substrate for a fuel electrode which is bonded to a surface of the electrolyte film, and

an air electrode which is bonded to the other surface of the electrolyte film forming in total an electrolyte-electrode assembly,

wherein the fuel electrode substrate is characterized by comprising a cermet of a first catalyst and a second solid electrolyte which shows oxide ion conductivity and has a bending strength of 500 MPa or more.

2. A solid oxide fuel cell having a supported electrolyte film according to claim 1, wherein the second solid electrolyte is comprised of yttria-stabilized zirconia containing 2 to 4 mol% yttria (Y_2O_3).

3. A solid oxide fuel cell having a supported electrolyte film according to claim 2, wherein the first solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

4. A solid oxide fuel cell having a supported electrolyte film according to claim 3, wherein an interlayer cermet film comprising a second catalyst and a third electrolyte which shows oxide ion conductivity

exceeding 0.1 S/cm at 800 °C is interposed between the electrolyte film and the fuel electrode substrate.

5. A solid oxide fuel cell having a supported electrolyte film according to claim 4, wherein the third solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

6. A solid oxide fuel cell having a supported electrolyte film according to claim 2, wherein an interlayer cermet film comprising a second catalyst and a third electrolyte which shows oxide ion conductivity exceeding 0.1 S/cm at 800 °C is interposed between the electrolyte film and the fuel electrode substrate.

7. A solid oxide fuel cell having a supported electrolyte film according to claim 6, wherein the third solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

8. A solid oxide fuel cell having a supported electrolyte film according to claim 1, wherein the second solid electrolyte is comprised of scandia-stabilized zirconia containing 3 to 6 mol% scandia (Sc_2O_3).

9. A solid oxide fuel cell having a supported electrolyte film according to claim 8, wherein the first solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

10. A solid oxide fuel cell having a supported electrolyte film according to claim 9, wherein an interlayer cermet film comprising a second catalyst and

a third electrolyte which shows oxide ion conductivity exceeding 0.1 S/cm at 800 °C is interposed between the electrolyte film and the fuel electrode substrate.

11. A solid oxide fuel cell having a supported electrolyte film according to claim 10, wherein the third solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

12. A solid oxide fuel cell having a supported electrolyte film according to claim 8, wherein an interlayer cermet film comprising a second catalyst and a third electrolyte which shows oxide ion conductivity exceeding 0.1 S/cm at 800 °C is interposed between the electrolyte film and the fuel electrode substrate.

13. A solid oxide fuel cell having a supported electrolyte film according to claim 12, wherein the third solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

14. A solid oxide fuel cell having a supported electrolyte film according to claim 1, wherein the first solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

15. A solid oxide fuel cell having a supported electrolyte film according to claim 14, wherein an interlayer cermet film comprising a second catalyst and a third electrolyte which shows oxide ion conductivity exceeding 0.1 S/cm at 800 °C is interposed between the electrolyte film and the fuel electrode substrate.

16. A solid oxide fuel cell having a supported electrolyte film according to claim 15, wherein the third solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).

17. A solid oxide fuel cell having a supported electrolyte film according to claim 1, wherein an interlayer cermet film comprising a second catalyst and a third electrolyte which shows oxide ion conductivity exceeding 0.1 S/cm at 800 °C is interposed between the electrolyte film and the fuel electrode substrate.

18. A solid oxide fuel cell having a supported electrolyte film according to claim 17, wherein the third solid electrolyte is comprised of scandia-stabilized zirconia containing 9 to 12 mol% scandia (Sc_2O_3).